

## WHAT IS CLAIMED IS:

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1. A method, comprising the step of:  
iteratively defining a circuit path between a source node  
5 and a destination node in a network comprising a plurality of  
nodes interconnected by links, where each link has associated  
with it a respective bandwidth utilization level, and where  
links having bandwidth utilization levels exceeding a threshold  
level are not used to define said circuit path.
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2. The method of claim 1, further comprising the steps of:  
determining an ideal shortest path between the source node  
and destination node;  
comparing the ideal shortest path to the iteratively  
15 defined circuit path; and  
in the case of said iteratively determined circuit path  
exceeding said ideal path by a threshold amount, adjusting said  
threshold level and repeating said step of iteratively defining  
said circuit path.
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3. The method of claim 2, wherein said iteratively defined  
circuit path is compared to said ideal circuit path by  
comparing the number of intervening nodes within each  
respective circuit path.
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4. The method of claim 3, wherein said threshold amount  
comprises a predetermined increase in the number of intervening  
nodes.
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5. The method of claim 2, wherein said iteratively defined  
circuit path is compared to said ideal circuit path by  
comparing the latency within each respective circuit path.
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6. The method of claim 2, wherein said iteratively defined  
circuit path is compared to said ideal circuit path by

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selecting, according to a shortest path algorithm, at least one link within a circuit path between a starting node and a destination node within a network comprising a plurality of nodes;

determining whether each selected link has associated with it a bandwidth utilization level exceeding a threshold level;

rejecting each selected link having associated with it a bandwidth utilization level exceeding said threshold level; and

5       repeating said steps of selecting and determining until a  
circuit path between said starting node and said destination  
node has been determined.

11. The method of claim 10, further comprising the step of  
10 increasing said threshold level in response to said determined  
circuit path exceeding an ideal circuit path by a predetermined  
amount.

12. The method of claim 11, wherein said predetermined amount  
15 comprises a difference in at least one of the number of nodes  
within said circuit paths, the latency associated with  
communications within said circuit paths and the number of  
links within said circuit paths.

20 13. The method of claim 10, wherein said step of selecting comprises the step of selecting, according to said shortest path algorithm, each link within a circuit path between the last node of a partially formed circuit path and said destination node.

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14. A method for determining a circuit path between a source node and a destination node in a network comprising a plurality of nodes interconnected by links, said method comprising the steps of:

30 (a) selecting, according to a shortest path algorithm, an available link to a next node within said circuit path;

(b) determining if said selected link has associated with it a bandwidth utilization level below a threshold level;

(c) rejecting said selected link in the case of said respective bandwidth utilization level being below said threshold level; and

(d) repeating steps (a) through (c) until a circuit path  
5 between said starting node and destination node has been determined.

15. The method of claim 14, further comprising the step of:

(e) determining if said circuit path exceeds an ideal  
10 circuit path by a predetermined amount; and in the case of said circuit path exceeding said ideal circuit by said predetermined amount, adjusting said threshold levels and repeating steps (a) through (d).

15 16. The method of claim 15, wherein said predetermined amount comprises a difference in at least one of the number of nodes within said circuit paths, the latency associated with communications within said circuit paths, and the number of links within said circuit paths.

20 17. A computer readable medium storing a software program that, when executed by a computer, causes the computer to perform a method comprising:

iteratively defining a circuit path between a source node  
25 and a destination node in a network comprising a plurality of nodes interconnected by links, where each link has associated with it a respective bandwidth utilization level, and where links having bandwidth utilization levels exceeding a threshold level are not used to define said circuit path.

30 18. The method of claim 17, further comprising the steps of:  
determining an ideal shortest path between the source node and destination node;

comparing the ideal shortest path to the iteratively  
35 defined circuit path; and

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in the case of said iteratively determined circuit path exceeding said ideal path by a threshold amount, adjusting said threshold level and repeating said step of iteratively defining said circuit path.

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19. Apparatus, comprising:

a network manager, for determining a circuit path between a source node and a destination node within a network comprising a plurality of nodes; and

10        a data base, for storing a respective bandwidth  
utilization level for each of a plurality of links  
|        interconnecting said nodes;

said network manager determining said circuit path by iteratively selecting appropriate next nodes according to a shortest path algorithm, determining whether a link communicating with said selected next node has associated with it a bandwidth utilization level exceeding a threshold level, and selecting an alternative next node in the case of said link having associated with it a bandwidth utilization level exceeding said threshold level.

20. The apparatus of claim 19, wherein:

in the case of a plurality of alternative next nodes having respective links with bandwidth utilization levels above  
25 said threshold level, adjusting said threshold level.